CLAIMS

What is claimed is:

1. A dynamic break loop capable closed loop network comprising:

a plurality of switches wherein each switch has two uplink ports and each uplink port has a set of dynamic break loop logic functions; and

a plurality of links connecting the plurality of switches into a closed loop,

wherein the set of dynamic break loop logic functions enables the network to operate dynamically as a plurality of open loop networks.

2. The network as defined in claim 1, wherein the set of dynamic break loop logic functions can be enabled or disabled.

3. The network as defined in claim 2, wherein the set of dynamic break loop logic functions comprise:

means for inserting an ID number of a source switch into each frame that is transmitted from the switch;

means for enabling a transmit function of each uplink port to monitor the ID number of each frame; and

means for enabling a receive function of each uplink port to monitor the ID number of each frame.

4. The network as defined in claim 3, wherein the set of dynamic break loop logic functions further comprises:

means for determining whether the ID number is not equal to a filter ID number, then the frame will pass unchanged; and

means for determining whether the ID number is equal to the filter ID number, then the frame will be cut off and will not be allowed to pass.

5. A switch for a dynamic break loop capable closed loop network, the switch comprising a set of dynamic break loop logic functions that enables the network to operate dynamically as a plurality of open loop networks.

6. The switch as defined in claim 5, wherein the set of dynamic break loop logic functions can be enabled or disabled.

7. The switch as defined in claim 6, wherein the set of dynamic break loop logic functions comprise:

means for inserting an ID number of a source switch into each frame that is transmitted from the switch;

means for enabling a transmit function of each uplink port to monitor the ID number of each frame; and

means for enabling a receive function of each uplink port to monitor the ID number of each frame.

8. The switch as defined in claim 7, wherein the set of dynamic break loop logic functions further comprises:

means for determining whether the ID number is not equal to a filter ID number, then the frame will pass unchanged; and

means for determining whether the ID number is equal to the filter ID number, then the frame will be cut off and will not be allowed to pass.

9. A method of dynamically breaking a closed loop network, the network having a plurality of switches wherein each switch has two uplink ports and having a plurality of links connecting the plurality of switches into a closed loop, the method comprising:

inserting an ID number of a source switch into each frame that is transmitted from the switch;

enabling a transmit function of each uplink port to monitor the ID number of each frame;

enabling a receive function of each uplink port to monitor the ID number of each frame;

determining whether the ID number is not equal to a filter ID number, then the frame will pass unchanged; and

determining whether the ID number is equal to the filter ID number, then the frame will be cut off and will not be allowed to pass.

10. A method of configuring a dynamic break loop capable closed loop network having a plurality of switches wherein each switch has two uplink ports and each uplink port has a set of dynamic break loop logic functions and having a plurality of links

connecting the plurality of switches into a closed loop, wherein the set of dynamic break loop logic functions enables the network to operate dynamically as a plurality of open loop networks, the method comprising:

assigning a unique identification number to each of the plurality of switches;

determining at least one farthest switch in the network from each of the plurality of switches; and

enabling the set of dynamic break loop logic functions in at least one of the uplink ports in each of the plurality of switches.

11. An apparatus for configuring a dynamic break loop capable closed loop network having a plurality of switches wherein each switch has two uplink ports and each uplink port has a set of dynamic break loop logic functions and having a plurality of links connecting the plurality of switches into a closed loop, wherein the set of dynamic break loop logic functions enables the network to operate dynamically as a plurality of open loop networks, the apparatus comprising:

means for assigning a unique identification number to each of the plurality of switches;

means for determining at least one farthest switch in the network from each of the plurality of switches; and

means for enabling the set of dynamic break loop logic functions in at least one of the uplink ports in each of the plurality of switches.

12. An Ethernet frame having a destination address, a source address, a payload, and a Cyclic Redundancy Check value, the frame comprising a field containing an identification number for one of a plurality of switches in a dynamic break loop capable closed loop network.

13. The frame as defined in claim 12, wherein the field is located between the source address and the payload.